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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
09/942,117	08/30/2001	Andreas Menrad	SCH-1832	6934

23599 7590 01/14/2003

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER	
HADDAD, MAHER M	

ART UNIT	PAPER NUMBER
1644	13

DATE MAILED: 01/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,117	MENRAD ET AL.	
	Examiner	Art Unit	
	Maher M. Haddad	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-55* is/are pending in the application.

4a) Of the above claim(s) *17-55* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-55 are pending.

2. Applicant's election with traverse of Group I, claims 1-16 and SEQ ID NO:1 as the species filed on 11/01/02, is acknowledged.

Applicant's traversal is on the grounds that the Groups within the restriction fall within the same class and subclass and therefore, a search and examination of at least groups that fall within the same class and subclass would not impose a serious burden on the Examiner. This is not found persuasive because MPEP 803(July 1998) states that "For purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search". The Restriction Requirement enunciated in the previous Office Action meets this criterion and therefore establishes that serious burden is placed on the examiner by the examination Groups. The Inventions are distinct for reasons elaborated in the previous Office Action.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 17-55 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b) as being drawn to nonelected inventions.

4. Claims 1-16 are under examination as they read on a protien that has the ability to bind specifically to the ED_b-fibronectin domains and that has an apparent molecular weight of 120-130 kDa for the light chain and 150-160 kDa for the heavy chain, wherein the binding region comprises the $\alpha 2\beta 1$ chain of the integrin wherein the ED_b-fibronectin binding region is SEQ ID NO: 1 as the species.

5. The specification is objected to under 37 CFR 1.821(d) for failing to disclose SEQ ID NOS, for the amino acid sequences disclosed on Figure 6, further page 28, lines 8-11 should be amended to disclose the SEQ ID NOS.

6. The use of the trademark "SEPHROSE" has been noted in this application, page 32, lines 7, 8, 9, 10, 17, 18, 19 and 21. It should be capitalized wherever it appears and be accompanied by the generic terminology.
Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

7. 35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 1-16 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-16, as written, do not sufficiently distinguish over proteins as they exist naturally because the claims do not particularly point out any non-naturally occurring differences between the claimed products and the naturally occurring products. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. *See Diamond v. Chakrabarty*, 447 U.S. 303, 206 USPQ 193 (1980). The claims should be amended to indicate the hand of the inventor, e.g., by insertion of "Purified" as disclosed on page 36 under Fig 12 of specification. See MPEP 2105.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) Claims 1-3 and 5-6, 8-9 and 11-12 are indefinite in the recitation of "whose", whose can be used to refer to people, but not a protein.

B) It is improper to recite "A" protein in claims 2-3. It is suggested that said word be changed to "The".

C) It is improper to recite "Protein" in claims 4-16. It is suggested that an article be inserted before "protein".

D) Claims 2(a and e), 6, 9, 12, 14, and 15 are indefinite for being in improper Markush format. The Office recommends the use of the phrase "selected from the group consisting of ..." with the use of the conjunction "and" in listing the species. See MPEP 706.03(Y).

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the $\alpha 2\beta 1$ protein that has the ability to bind specifically to the ED_b-fibronectin domains for screening assay does not reasonably provide **enablement** for any protein whose binding to the ED_b-fibronectin domains is inhibited by any "polypeptide" that **comprises** an amino acid sequence of SEQ ID NO:1, and that **comprises** the α chain of the integrin further as recited in claims 1(a-f), 2(a-f), 3(a-f) and 4-16. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with this claim.

The specification disclosure does not enable one skilled in the art to practice the invention without an undue amount of experimentation.

Applicant has not provided sufficient biochemical information that distinctly identifies such "ED_b-fibronectin binding proteins" other than $\alpha 2\beta 1$ protein. While any ED_b-fibronectin binding protein may have some notion of the activity, claiming biochemical molecules by such properties fails to provide sufficient guidance and direction as to how the skilled artisan can make such agents, commensurate in scope with the claimed invention. The specification fails to provide any guidance on how to make any ED_b-fibronectin binding protein that can be used for screening assay. The instant claims further encompass in their breadth *any* "polypeptide" which inhibit the binding to ED_b-fibronection domains, including those that comprise a "SEQ ID NO:1".

The term "comprising" is open-ended, it expand the polypeptide of SEQ ID NO: 1 to include additional non disclosed amino acids outside of the "SEQ ID NO:1".

It has been well known to those skilled in the art at the time the invention was made that minor structural differences among structurally related compounds or compositions can result in substantially different biological activities. Because of the lack of sufficient guidance and predictability in determining which modifications would lead to the binding of ED_b fibronectin domains and that the relationship between the protein and its activity was not well understood. It would require an undue amount of experimentation for one of skill in the art to arrive at the breadth of proteins that bind to ED_b-fibronectin domains. Without sufficient guidance, the changes which can be made in the structure of "protein" and still provide binding ability to the ED_b-fibronectin is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue.

Because of this lack of guidance, the extended experimentation that would be required to determine which modifications would be acceptable to retain occluding structural and functional activity, and the fact that the relationship between the sequence of a protein/peptide and its tertiary structure (i.e. its activity) are not well understood and are not predictable (e.g. see Ngo et

al.; in The Protein Folding Problem and Tertiary Structure Prediction,1994, Merz et al., (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495.), it would require an undue amount of experimentation for one of skill in the art to arrive at the other ED_b-fibronectin binding proteins encompassed by the claimed invention. Furthermore in addressing the ligand binding, Kogan et al. (J. Biol. Chem. 270: 14047-14055 , 1995) disclose that a single amino acid can determine the ligand specificity of a selectin and the unpredictable nature of amino acid alterations in adhesion/binding activity (see entire document, including the Discussion).

The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of proteins broadly encompassed by the claims and the claims broadly encompass a significant number of inoperative species. Since the amino acid sequence of a protein determines its structural and functional properties, predictability of which changes can be tolerated in a peptide's amino acid sequence and still retain similar biological or biological activity requires a knowledge of and guidance with regard to which amino acids in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the protein's structure relates to its function. However, the problem of predicting protein structure from mere sequence data of a single protein and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein and finally what changes can be tolerated with respect thereto is extremely complex and well outside the realm of routine experimentation.

Reasonable correlation must exist between the scope of the claims and scope of enablement set forth. In view of the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, the lack of sufficient guidance in the specification, and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

11. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is in possession of the $\alpha 2\beta 1$ protein that has the ability to bind specifically to the ED_b-fibronectin domains for screening assay.

Applicant is not in possession of any protein whose binding to the ED_b-fibronectin domains is inhibited by any "polypeptide" that comprises an amino acid sequence of SEQ ID NO:1, and that comprises the α chain of the integrin, further as recited in claims 1(a-f), 2(a-f), 3(a-f) and 4-16.

Applicant has disclosed only $\alpha 2\beta 1$ protein; therefore, the skilled artisan cannot envision all the contemplated protein possibilities recited in the instant claims. Consequently, conception cannot be achieved until a representative description of the

structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the Revised Interim Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,583,203, as is evidenced by U.S Patent No. 5,120,830.

The `203 patent teaches a purified VLA-2 protein, $\alpha 2\beta 1$ integrin receptor from platelets, that has molecular weight of 165/130 kDa (see the entire document and column 1, lines 14-21, column 2, lines 45-50-56 in particular).

Further, as is evidenced by `830 patent that α2β1 integrin which has a MW of 160/130 kDa expressed on platelets, fibroblast cells (considered to be part of the stromal cells), endothelial cells and melanoma cell lines (tumor) (see column 1, lines 16-30 in particular).

Claim 4 is included because it would be immediately apparent to one skill in the art that the endothelial cells are proliferating endothelial cells.

While the prior art disclosure is silent as to the " protein has the ability to bind specifically to the ED_b-fibronectin domains (in claim 1(a)), whereby the binding region is characterized by at least one sequence that is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 2(a))", the "protein binding to the ED_b-fibronectin domains is inhibited by a polypeptide (in claim 1(e)) that comprises a sequence that is selected from the group that comprises SEQ ID NO: 1(in claim 2 (e)) and that comprises the α chain of the integrin (claim 3 (e))", the "protein whose specific binding to the ED_b-fibronectin domains mediates the adhesion of endothelial cells, tumor-stromal cells and tumor cells (in claim 5), whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 6)", the " protein whose specific binding to the ED_b-fibronectin domains induces the proliferation of endothelial cells (in claim 8), whereby the binding region is characterized by at least one sequence that is selected from the group that compreses SEQ ID NO:1 (in claim 9)", the "protein whose specific binding to the EDb-fibronection domains indeuces the proliferation, migration and differentiation of endothelial cells in a collagen matrix (in claim 11) whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 12)" and the "protein that binds to the ED_b-fibronectin domains and induces specific signal transduction pathways, whereby at least one gene is induced that codes fro a protein that is selected from the group that comprises focal adhesion kinase, CD6 ligand (ALCAM), the a chain of the vitronectin receptor, the integrated alpha 8 subunit, and a/the precursor(s) for follistatin-related protein (in claim 14), whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO: 1 (in claim 15)" per se; the product is the same as the claimed invention. Therefore, the binding of the protein to the ED_b-fibronectin domains, which is inhibited by a polypeptide, is considered an inherent property. The claimed functional limitations would be inherent properties of the α2β1 protein.

Since the office does not have a laboratory to test the reference α2β1 protein, it is applicant's burden to show that the reference α2β1 protein does not bind to ED_b-fibronectin domains recited in the claims. See In re Best, 195 USPQ 430, 433 (CCPA 1977); In re Marosi, 218 USPQ 289, 292-293 (Fed. Cir. 1983); and In re Fitzgerald et al., 205 USPQ 594 (CCPA 1980).

The reference teachings anticipate the claimed invention.

14. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Takada *et al* (J Cell Biology 105:397-407, 1989), as is evidenced by U.S Patent No. 5,120,830.

Takada *et al* teach a purified VLA-2 ($\alpha 2\beta 1$) protein from outdated platelets using lectin-Sepharose and then by immunoaffinity chromatography (see the entire document and page 398, under Purification of VLA-2 from Platelets and NH2-terminal Sequencing in particular). Takada et al further teach that the molecular weight ofVLA-2 is 150/110 kDa (see Figure 1, page 399 in particular).

Further, as is evidenced by `830 patent that $\alpha 2\beta 1$ integrin which has a MW of 160/130 kDa expressed on platelets, fibroblast cells (considered to be part of the stromal cells), endothelial cells and melanoma cell lines (tumor) (see column 1, lines 16-30 in particular).

Claim 4 is included because it would be immediately apparent to one skill in the art that the endothelial cells are proliferating endothelial cells.

While the prior art disclosure is silent as to the " protein has the ability to bind specifically to the ED_b-fibronectin domains (in claim 1(a)), whereby the binding region is characterized by at least one sequence that is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 2(a))", the "protein binding to the ED_b-fibronectin domains is inhibited by a polypeptide (in claim 1(e)) that comprises a sequence that is selected from the group that comprises SEQ ID NO: 1(in claim 2 (e)) and that comprises the α chain of the integrin (claim 3 (e))", the "protein whose specific binding to the ED_b-fibronectin domains mediates the adhesion of endothelial cells, tumor-stromal cells and tumor cells (in claim 5), whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 6)", the " protein whose specific binding to the ED_b-fibronectin domains induces the proliferation of endothelial cells (in claim 8), whereby the binding region is characterized by at least one sequence that is selected from the group that compreses SEQ ID NO:1 (in claim 9)", the "protein whose specific binding to the EDb-fibronection domains indeuces the proliferation, migration and differentiation of endothelial cells in a collagen matrix (in claim 11) whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 12)" and the "protein that binds to the ED_b-fibronectin domains and induces specific signal transduction pathways, whereby at least one gene is induced that codes fro a protein that is selected from the group that comprises focal adhesion kinase, CD6 ligand (ALCAM), the a chain of the vitronectin receptor, the integrated alpha 8 subunit, and a/the precursor(s) for follistatin-related protein (in claim 14), whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO: 1 (in claim 15)" per se; the product is the same as the claimed invention. Therefore, the binding of protein to the ED_b-fibronectin domains, which is inhibited by a polypeptide such as SEQ ID NO:1, is considered an inherent property. The claimed functional limitations would be inherent properties of the $\alpha 2\beta 1$ protein.

Since the office does not have a laboratory to test the reference $\alpha 2\beta 1$ protein, it is applicant's burden to show that the reference $\alpha 2\beta 1$ protein does not bind to ED_b-fibronectin domains recited in the claims. See In re Best, 195 USPQ 430, 433 (CCPA 1977); In re Marosi, 218 USPQ 289, 292-293 (Fed. Cir. 1983); and In re Fitzgerald et al., 205 USPQ 594 (CCPA 1980).

The reference teachings anticipate the claimed invention.

15. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kern *et al* (Eur. J. Biochem. 215:151-159, 1993), as is evidenced by U.S Patent No. 5,120,830.

Kern *et al* teach an isolated $\alpha 2\beta 1$ integrin receptor from placenta extracts (see the entire document and page 152, 1st column 2nd paragraph in particular).

Further, as is evidenced by `830 patent that $\alpha 2\beta 1$ integrin which has a MW of 160/130 kDa expressed on platelets, fibroblast cells (considered to be part of the stromal cells), endothelial cells and melanoma cell lines (tumor) (see column 1, lines 16-30 in particular).

Claim 4 is included because it would be immediately apparent to one skill in the art that the endothelial cells are proliferating endothelial cells.

While the prior art disclosure is silent as to the " protein has the ability to bind specifically to the ED_b-fibronectin domains (in claim 1(a)), whereby the binding region is characterized by at least one sequence that is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 2(a))", the "protein binding to the ED_b-fibronectin domains is inhibited by a polypeptide (in claim 1(e)) that comprises a sequence that is selected from the group that comprises SEQ ID NO: 1(in claim 2 (e)) and that comprises the α chain of the integrin (claim 3 (e))", the "protein whose specific binding to the ED_b-fibronectin domains mediates the adhesion of endothelial cells, tumor-stromal cells and tumor cells (in claim 5), whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 6)", the " protein whose specific binding to the ED_b-fibronectin domains induces the proliferation of endothelial cells (in claim 8), whereby the binding region is characterized by at least one sequence that is selected from the group that compreses SEQ ID NO:1 (in claim 9)", the "protein whose specific binding to the EDb-fibronection domains indeuces the proliferation, migration and differentiation of endothelial cells in a collagen matrix (in claim 11) whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO:1 (in claim 12)" and the "protein that binds to the ED_b-fibronectin domains and induces specific signal transduction pathways, whereby at least one gene is induced that codes fro a protein that is selected from the group that comprises focal adhesion kinase, CD6 ligand (ALCAM), the a chain of the vitronectin

receptor, the integrated alpha 8 subunit, and a/the precursor(s) for follistatin-related protein (in claim 14), whereby the binding region is characterized by at least one sequence that is selected from the group that comprises SEQ ID NO: 1 (in claim 15)" per se; the product is the same as the claimed invention. Therefore, the binding of the protein to the ED_b-fibronectin domains, which is inhibited by a polypeptide, is considered an inherent property. The claimed functional limitations would be inherent properties of the $\alpha 2\beta 1$ protein.

Since the office does not have a laboratory to test the reference $\alpha 2\beta 1$ protein, it is applicant's burden to show that the reference $\alpha 2\beta 1$ protein does not bind to ED_b-fibronectin domains recited in the claims. See In re Best, 195 USPQ 430, 433 (CCPA 1977); In re Marosi, 218 USPQ 289, 292-293 (Fed. Cir. 1983); and In re Fitzgerald et al., 205 USPQ 594 (CCPA 1980).

The reference teachings anticipate the claimed invention.

16. No claim is allowed.

17. Formal drawings have been submitted which fail to comply with 37 CFR 1.84. Please see the enclosed form PTO-948.

18. **1. Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maher Haddad, whose telephone number is (703) 306-3472. The examiner can normally be reached Monday to Friday from 8:00 to 4:30. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached at (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 305-3014.

Maher Haddad, Ph.D.
Patent Examiner
Technology Center 1600
January 10, 2003

Christina Chan

CHRISTINA CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600